IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re application of:

Parce *et al.*

Appl. No.: 09/975,500
(Cont. of Appl. No. 09/346,660; Filed: July 1, 1999, which is a Cont. of Appl. No. 08/671,987; Filed: June 28, 1996.)

Filed: October 11, 2001

For: High Throughput Screening Assay Systems in Microscale Fluidic Devices

Confirmation No.: 9267

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REQUEST BY APPLICANTS FOR INTERFERENCE
PURSUANT TO 37 CFR § 1.607

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Pursuant to the provisions of 37 C.F.R. § 1.607 and 1.643, Caliper Technologies Corp., assignee of record of the entire interest of the present application, requests the declaration of an interference between the present application and U.S. Patent No. 6,221,677 to Wu *et al*; issued on April 24, 2001 ("the Wu '677 patent"). A copy of the Wu '677 patent is enclosed.

As noted above, the present application is a continuation application of Application No. 09/346,660, filed July 1, 1999, which is a continuation application of Application No. 08/671,987, filed June 28, 1996. The present application claims the benefit under 35 U.S.C. § 120 of the earlier filing date of application Application No. 08/671,987, filed June 28, 1996. Accordingly, the present application is entitled to an effective filing date of June 28, 1996.

The face of the Wu '677 patent indicates that it was filed on June 18, 1999, and claims priority as a divisional application of Application No. 08/938,585, filed September 26, 1997. Accordingly, the effective filing date of the present application is before the effective filing date of the Wu '677 patent. In accordance with 37 C.F.R. § 1.608(a), the undersigned hereby states

that there is a basis upon which Applicants are entitled to a judgment relative to the Wu '677 patent.

I. PROPOSED COUNT

In accordance with 37 C.F.R. § 1.607(a)(2), the following counts are proposed:

Proposed Count 1

> A method of reacting small primary particles from a primary stream also comprising larger particles, comprising the steps of:
>
> conducting said primary stream into a laminar flow reaction channel;
>
> separately conducting a reagent stream comprising reagent particles into said reaction channel, such that said primary stream and said reagent stream flow in adjacent laminar steams;
>
> allowing said primary particles to diffuse from said primary stream into said reagent stream, and to react with said reagent particles and form detectable product particles, thereby converting said reagent stream into a product stream and said primary stream into a residual primary stream;
>
> conducting said residual primary stream out of said reaction channel;
>
> separately conducting said product stream out of said reaction channel; and
>
> detecting said product particles.

Proposed Count 1 corresponds exactly to claim 1 of the Wu '677 patent and claim 75 of the present application.

Proposed Count 2

> A method for reacting primary particles from a primary stream, comprising the steps of:
>
> conducting said primary stream into a first laminar flow reaction channel;
>
> separately conducting a first reagent stream comprising first reagent particles into said first laminar flow reaction channel,

such that said primary stream and said first reagent stream flow in adjacent laminar streams;

allowing said primary particles to diffuse from said primary stream into said first reagent stream, and to react with said first reagent particles and form first product particles, thereby converting said first reagent stream into a first product stream and said primary stream into a residual primary stream;

thereafter conducting a first companion stream into said first laminar flow reaction channel such that said first product stream and said first companion stream flow in adjacent laminar streams thereby converting said first product stream into a diffused first product stream and said first companion stream into a diffused first companion stream;

conducting said residual primary stream out of said first reaction channel; and

separately conducting said first diffused product stream out of said first reaction channel.

Proposed Count 2 corresponds exactly to claim 4 of the Wu '677 patent and claim 78 of the present application.

II. IDENTIFICATION OF CLAIMS CORRESPONDING TO PROPOSED COUNTS

A. Wu '677 Patent Claims

Claim 1 of the Wu '677 patent corresponds exactly to proposed Count 1. Claims 2-3 of the Wu '677 patent correspond substantially to proposed Count 1, in the sense of 37 C.F.R. § 1.601(f) in that they are not identical to the counts but define the same patentable invention under 37 C.F.R. § 1.601(n).

Claim 4 of the Wu '677 patent corresponds exactly to proposed Count 2. Claims 7-13 of the Wu '677 patent correspond substantially to proposed Count 2, in the sense of 37 C.F.R. § 1.601(f) in that they are not identical to the counts but define the same patentable invention under 37 C.F.R. § 1.601(n).

B. Claims of the present application

The present application, as amended in a Preliminary Amendment filed October 11, 2001, contains claims 75-85.

Claim 75 corresponds exactly to proposed Count 1. Claims 76-77 of the present application correspond substantially to proposed Count 1, in the sense of 37 C.F.R. § 1.601(f) in that they are not identical to the counts but define the same patentable invention under 37 C.F.R. § 1.601(n).

Claim 78 corresponds exactly to proposed Count 2. Claims 79-85 of the present application correspond substantially to proposed Count 2, in the sense of 37 C.F.R. § 1.601(f) in that they are not identical to the counts but define the same patentable invention under 37 C.F.R. § 1.601(n).

III. APPLICATION OF CLAIMS 75-85 TO THE DISCLOSURE OF THE PRESENT APPLICATION

Attached Table 1 was submitted with the above-mentioned Preliminary Amendment. Table 1 sets forth examples of support in the present specification for each claim feature of

claims 75-85. Accordingly, the subject matter of claims 75-85 is disclosed in the present application at least according to Table 1.

IV. 35 U.S.C. § 135(b) EXPLANATION

The claims identified as corresponding to the counts were presented in a Preliminary Amendment filed October 11, 2001. As the Preliminary Amendment was filed within one (1) year of the issue date of the Wu '677 patent, April 24, 2001, Applicants have complied with 35 U.S.C. § 135(b).

V. CONCLUSION

For the foregoing reasons, it is respectfully requested that an interference be declared between the present application and the Wu '677 patent.

Respectfully submitted,

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TABLE 1

	U.S. Patent No.6,221,677	Present Application
Claim 1 of '677 patent. Claim 75 in present application.	A method for reacting small primary particles from a primary stream also comprising larger particles, comprising the steps of:	The present invention provides methods for performing various biochemical analyses. One example is a receptor/ligand binding assay comprising antibody/antigen pairs. See page 7, line 29 through page 8, line 3 and page 10, lines 14-16.
	conducting said primary stream into a laminar flow reaction channel;	Figure 2B, elements 106, 114 and accompanying text on page 24, lines 32-34 describe conducting a primary stream into a laminar flow reaction channel. Support for microscale channel dimensions is provided on page 14, lines 27-35 wherein channels having cross sectional dimensions in the range of 0.1μm to about 500μm are described.
	separately conducting a reagent stream comprising reagent particles into said reaction channel, such that said primary stream and said reagent stream flow in adjacent laminar streams;	Figure 2A, elements 104 and accompanying text on page 24, lines 29-30 illustrates conducting a reagent stream comprising receptor particles into the reagent channel 110 wherein the reagent stream flows in adjacent laminar stream with the primary stream. Also, see Figure 5 and text on page 26, lines 11-15.
	allowing said primary particles to diffuse from said primary stream into said reagent stream, and to react with said reagent particles and form detectable product particles, thereby converting said reagent stream into a product stream and said primary stream into a residual primary stream;	See Figure 5 and accompanying text on page 26, lines 25-29.
	conducting said residual primary stream out of said reaction channel;	Figure 5 illustrates conducting a residual primary stream out of reaction channel 510b and into channel region lying between the intersection of channel 510 with channel 526 and reservoir 518.
	separately conducting said product stream out of said reaction channel; and	The product stream for example, sample plugs containing the receptor and the ligand are flowed out of reaction channel 510b and into the transfer channel 526. See Figure 5 and text on page 26, lines 29-38.
	detecting said product particles.	See page 24, lines 34-37 and Figure 2A.

Claim 2 of '677 patent. Claim 76 in present application.	The method of claim1/75 further comprising the step of analyzing said residual primary stream.	Page 27, lines 21-24 describes post reaction analysis. Also see description of the system on page 36, lines 27-31.
Claim 3 of '677 patent. Claim 77 in present application.	The method of claim1/75 wherein said primary stream comprises components of a biochemical system **[is blood]**, said small primary particles are native antigens, and said first reagent particles are first antibodies.	See page 10, lines 14-16 for examples of receptor/ligand interactions assayed using methods of the present invention including antibody/antigen binding pairs. See also, page 7, lines 10-24 for description of biochemical systems.
Claim 4 of '677 patent. Claim 78 in present application.	A method for reacting primary particles from a primary stream, comprising the steps of:	The present invention provides methods for performing various biochemical analyses. One example is a receptor/ligand binding assay. See page 7, line 29 through page 8, line 3 and page 10, lines 14-16.
	conducting said primary stream into a first laminar flow reaction channel;	Figure 2B, elements 106, 114 and accompanying text on page 24, lines 32-34 describe conducting a primary stream into a laminar flow reaction channel. Support for microscale channel dimensions is provided on page 14, lines 27-35 wherein channels having cross sectional dimensions in the range of 0.1μm to about 500μm are described.
	separately conducting a first reagent stream comprising first reagent particles into said first laminar flow reaction channel, such that said primary stream and said first reagent stream flow in adjacent laminar streams;	Figure 2A, elements 104 and accompanying text on page 24, lines 29-30 illustrates conducting a reagent stream comprising receptor particles into the reagent channel 110 wherein the reagent stream flows in adjacent laminar stream with the primary stream. Also, see Figure 5 and text on page 26, lines 11-15.
	allowing said primary particles to diffuse from said primary stream into said first reagent stream, and to react with said first reagent particles and form first product particles, thereby converting said first reagent stream into a first product stream and said primary stream into a residual primary stream;	See Figure 5 and accompanying text on page 25, line 9 for description of formation of a first product stream comprising receptor/labeled ligand. Also see page 26, lines 25-29.
	thereafter conducting a first companion stream into said first laminar flow reaction channel such that said first product stream and said first companion stream flow in adjacent laminar streams thereby converting said first product stream into a diffused first product stream and said first	See page 24, lines 27-37 describing companion stream comprising test compounds being conducted into the laminar flow reaction channel such that the first product stream of receptor/ligand flow in adjacent laminar streams with the companion stream

	companion stream into a diffused first companion stream; conducting said residual primary stream out of said first reaction channel; and separately conducting said first diffused product stream out of said first reaction channel.	thereby converting the first product stream into a diffused product stream and the companion stream into a diffused companion stream. Figure 5 illustrates conducting a residual primary stream out of reaction channel 510b and into channel region lying between the intersection of channel 510 with channel 526 and reservoir 518. The product stream for example, sample plugs containing the receptor and the ligand are flowed out of reaction channel 510b and into the transfer channel 526. See Figure 5 and text on page 26, lines 29-38.
Claim 7 of '677 patent. Claim 79 in present application.	The method of claim 4/78 wherein said primary stream contains larger, non-diffusing particles in addition to said primary particles.	See page 29, lines 26-31 for a description of primary streams containing larger particles such as beads. Also see page 7, lines 10-24 for description of biochemical systems that are used in the methods of the present invention.
Claim 8 of '677 patent. Claim 80 in present application.	The method of claim 7/79 wherein said primary stream **[is blood]** comprises components of a biochemical system, said primary particles are native antigens, and said first reagent particles are first antibodies.	See page 10, lines 14-16 for description of antibody/antigen binding pairs. Also see page 24, lines 27-28. See also, page 7, lines 10-24 for description of biochemical systems.
Claim 9 of '677 patent. Claim 81 in present application.	The method of claim 4/78 wherein said step of detecting said first product particles comprises a method selected from the group consisting of optical, electrical, calorimetric and chemical detection.	See page 17, lines 9-28 for description of various detection systems comprising optical and calorimetric detection.
Claim10 of '677 patent. Claim 82 in present application.	The method of claim 4/78 wherein said step of detecting comprises absorbance, luminescence or fluorescence detection.	See page 17, lines 9-28 for description of various detection methods comprising absorbance and fluorescence.
Claim 11 of '677 patent. Claim 83 in present application.	The method of claim 4/78 wherein said first reagent particles are immobilized on beads.	See page 29, lines 26-31 for a description of bead based biochemical systems.
Claim 12 of '677 patent. Claim 84 in present application.	The method of claim 11/83 further comprising the step of detecting said first product particles using single particle detection.	See page 32, lines 25 –37 for description of particles using single particle detection such as individual identification of spent beads.

Claim 13 of '677 patent. Claim 85 in present application.	The method of claim 4/78 further comprising the step of analyzing said residual primary stream.	Page 27, lines 21-24 describes post reaction analysis. Also see description of the system on page 36, lines 27-31.